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ABSTRACT

Senior Project is a culminating assessment for high school seniors, involving planning, research, writing, and presentations. Characteristics and outcomes of the program were studied via surveys of 436 teachers, 422 students, and 163 graduates at 4 Senior Project schools and 4 control schools in rural and small-town North Carolina. Findings indicate that project teachers used rubrics and extended projects to assess student performance more often than control teachers did. Project English teachers were perceived by students to lecture more, assign more project-related work, and use more computer-based instruction than control teachers. In project schools, students devoted significant time to projects related to research papers that they wrote at the beginning of the course. Project English teachers used more performance-based assessment methods than did control English teachers. Concerning specific skills, project teachers reported greater emphasis on using reference materials, while control teachers emphasized responding to criticism and questions. Project students perceived greater emphasis on writing skills than did control students, but tests of global writing abilities showed no significant difference between project and control students. More than half of project school graduates felt that the project experience had influenced their future careers. About 75 percent of project graduates reported developing skills in public speaking, research, writing, interviewing, planning, organization, interpersonal, and work-related skills. It seems clear that the effects of the senior project were not realized until students were out of high school and interacting in the workplace or an institution of higher education. (TD)

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A Preliminary Study of Senior Project Programs in Selected Southeastern High Schools

Presented at the Annual Meeting of the American Educational Research Association

New Orleans, Louisiana

April 4, 2002

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A Preliminary Study of Senior Project Programs in Selected North Carolina High Schools

Introduction

SERVE staff conducted a field study of selected Senior Project schools and Control schools during the 1999-2000 school year. Senior Project had been an area of study for SERVE, a Regional Education Lab, since 1994 and many southeastern high schools had established Senior Project sites. Stakeholders, legislators and educators were requesting information about the impact of this program on students, faculty members and schools, particularly since wide-scale adoption of the program was being considered at the both the district and state levels. As the result, the research questions for this study included:

- Are students who graduate from Senior Project high schools better prepared for the work force and/or higher education than those who graduate from non-Senior Project high schools?
- Do teachers' instructional and assessment methods differ at Senior Project high schools as compared to non-Senior Project high schools?
- Does the emphasis given specific communication, planning, time management, and research skills differ in Senior Project schools as compared to non-Senior Project schools?
- Are there differences in students' academic and formative experiences in Senior Project schools and non-Senior Project schools?

The SERVE research team looked for possible differences in instruction, assessment methods, student achievement, class offerings and clubs, school improvement models, faculty and student attitudes, and graduate attitudes in four North Carolina (NC) Senior Project high schools and four matched Control schools. 1997 graduates of the eight schools were surveyed about their degree of satisfaction with their high school education, how high school prepared them for the future, and how confident they were about finding enjoyable work in which they can be successful. For each study measure, the point of comparison is Senior Project versus Control schools.

This report provides background information on Senior Project and SERVE's activities with Senior Project. After a review of the study's methodology, the following sections organize the results:

- Instruction and assessment as perceived by teachers and students
- Development of specific skills as perceived by teachers and students
- Student writing achievement
- Graduate perceptions of their high school experiences
- Conclusions and future research needs

I. Senior Project Background

Senior Project is a culminating assessment for 12th graders that determines what they know and what they are able to do as they prepare to graduate from high school. It consists of seniors writing research papers on approved topics of their choice, developing related products and portfolios related to their research, and delivering presentations about their work before a review panel of community members. The Senior Project incorporates the skills of writing, researching, presenting, planning and time management. In most cases it is a part of the senior English class, but at some schools it is a stand-alone class. Before senior year begins, incoming 12th graders and their parents attend a Senior Project orientation. The intent of the program, its components, testimonials from graduates and a timeline are usually a part of the orientation. A student selects a topic that is both a personal area of interest and a learning stretch; a school committee then approves the topic. At every step of the way, students are provided with program guidelines and support. Students complete eight to fifteen page research papers that include primary and secondary sources. They develop related products and portfolios and devote at least 15 hours to product development. Most Senior Project programs have a strong mentoring component, and teachers and community members serve in this capacity. Students' speeches are based on their papers and products, and are usually seven to 10 minutes in length. Although students are assessed on every component of Senior Project, they also have numerous opportunities to critique their own work.

Nationally there has been a growing concern about the high school experience. In 2000, the U.S. Department of Education and several foundations initiated the National Commission on the High School Senior Year. The intent of the commission was to examine ways to make the senior year more rigorous and productive. Examples of recommendations from the commission's final report included encouraging all students to take more rigorous courses throughout high school and requiring internships.

Historically secondary educators have supported the notion of a real world performance-based assessment that incorporated all the disciplines and acted as a transition between high school and the college or the workplace. In the 1980s, Carleen Osher and Jane Summers, high school teachers from Medford, Oregon, developed the idea of a Senior Project program as a way to alleviate senioritis and to ensure that students could read, write, speak, apply, analyze, synthesize, and evaluate when they graduated from high school. They also believed that it was a way for students to gain self-confidence and self-discipline. Ernest Boyer, in his book *High School*, stated that strengthening traditional high school courses was not enough to connect students to world of work or higher education. A new vision was needed to join the disciplines to the real world. Ted Sizer (1992) also established the need to integrate the secondary curriculum and for students to participate in a Graduation by Exhibition to demonstrate what they knew and what they could do. Jacqueline Ancess and Linda Darling-Hammond (1993) wrote about the need to associate the academic and the vocational at the secondary level and extend students' knowledge and skills in both areas. Over the past 15 years seniors at Central Park East in New York City have consistently demonstrated the significance of a culminating assessment as they prepared to graduate from high school. Finally, the Class of 1999 at Broad Street High School in Shelby, Mississippi, touched on the need for educational experiences

outside the classroom when they stated, "Senior Project shows us if we are ready for the real world."

There are a variety of benefits associated with Senior Project. It often becomes a self-evaluation activity for schools. By analyzing Senior Project student work, educators can upgrade their school programs so students will be more adequately prepared. Some teachers who are directly associated with the Senior Project program have become professionally revitalized; others have become motivated to make sweeping changes in their schools or speak at conferences or workshops about their experiences with Senior Project. Participating students have acquired new skills and more self-confidence. Many have developed more focused career plans, and some have been offered scholarships or jobs. Unmotivated students have become high achievers during this process. Community members at some sites have rallied around the Senior Project concept by supporting students and publicizing the program to a wider audience.

II. SERVE's Senior Project Activities

As part of SERVE's research in the areas of student assessment and school reform, we have supported secondary educators across the Southeast—Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina—in developing and implementing Senior Project programs since 1994. SERVE initially began our work in this area when district and secondary educators requested our assistance in creating a high school experience that was more rigorous, real world and motivating for all students. Support of Senior Project has taken the form of offering training opportunities and yearly institutes, providing seed money to schools, developing SERVE Senior Project videos to support training efforts, bringing Senior Project coordinators together on a regular basis to exchange ideas and provide continuing staff development, and visiting school sites to collect data, view student work and serve on boards. Currently there are over 100 high schools that comprise the SERVE Senior Project Network; this number continues to grow. Becoming a member of the SERVE Network is voluntary for high schools, and SERVE Senior Project sites represent a cross-section of the southern high schools.

SERVE staff's initial research activities comprised surveys to students, faculty members, parents, and Senior Project coordinators at 16 established Senior Project sites in spring 1998 and spring 1999. Each year approximately 1,800 students, 180 parents, 170 faculty members, and 16 Senior Project coordinators were surveyed. These surveys were developed to assess perceived impacts and support of Senior Project. For both years, individuals who thought some changes should be made had concerns about the current timetable for completing the various Senior Project components. In 1999, 75 percent of students agreed and/or strongly agreed that their writing, research, speaking, planning and time management skills had improved as a result of Senior Project participation. Senior Project coordinators and parents degree of agreement was even higher—over 80 percent. In 1998, 23 percent recommended no changes to Senior Project, 55 percent said some changes were needed, and 22 percent stated that that program should be discontinued. In 1999, 40 percent of students believed no changes should be made, 37 percent thought some changes should be made and 23 percent said the program should be stopped.

III. Research Methodology

Selection of Schools

The research staff selected four treatment schools that had institutionalized Senior Project. At these sites the program had been in place for at least four years, all seniors participated in Senior Project, and all the program components (research paper, product, portfolio, presentation) were in place. Selection of study sites, both Senior Project and non-Senior Project, were restricted to North Carolina so that schools could be compared on the basis of a common statewide assessment system. The research team sought to match a Control school to each Senior Project school on the basis of the following criteria:

- Staff size (number of Full Time Equivalent teaching positions (FTEs)),
- Size of the student body (number in Average Daily Attendance (ADA)),
- Percent of students in the federal Free Lunch program,
- Percent of minority students enrolled at the school,
- Overall performance in the state testing program (Performance Composite Score), and
- Urbanicity (locale).

Schools were matched using demographic data from the National Center for Education Statistics' Common Core of Data and achievement data from the North Carolina Department of Public Instruction. Table 1 summarizes the matching criteria for all eight schools in the study. (School SP_1 (Eno River High[1]) is matched to School C_1 (Weymouth Woods High), and so on.) For each Senior Project school, the Control school was well matched on academic performance, percent minority, percent free lunch, and locale. It was not always possible to match schools based on the two size variables.

Table 1
Matching criteria for Senior Project and Control Schools

School	FTE (#)	ADA (#)	Free Lunch (%)	Minority (%)	Performance Composite Score	Locale
SP_1: Eno River High	101	1587	9	10	69.1	Small town
C_1: Weymouth Woods High	58	821	7	14	65.4	Small town
SP_2: Hanging Rock High	52	726	30	53	55.6	Small town
C_2: Singletary Lake High	68	897	30	54	56.8	Small town
SP_3: Morrow Mountain High	50	951	21	21	66.9	Small town
C_3: Raven Rock High	66	881	17	23	61.9	Small town
SP_4: Parker Creek High	61	567	7	12	63.6	Rural
C_4: Rollingview High	72	1035	7	15	60.0	Rural

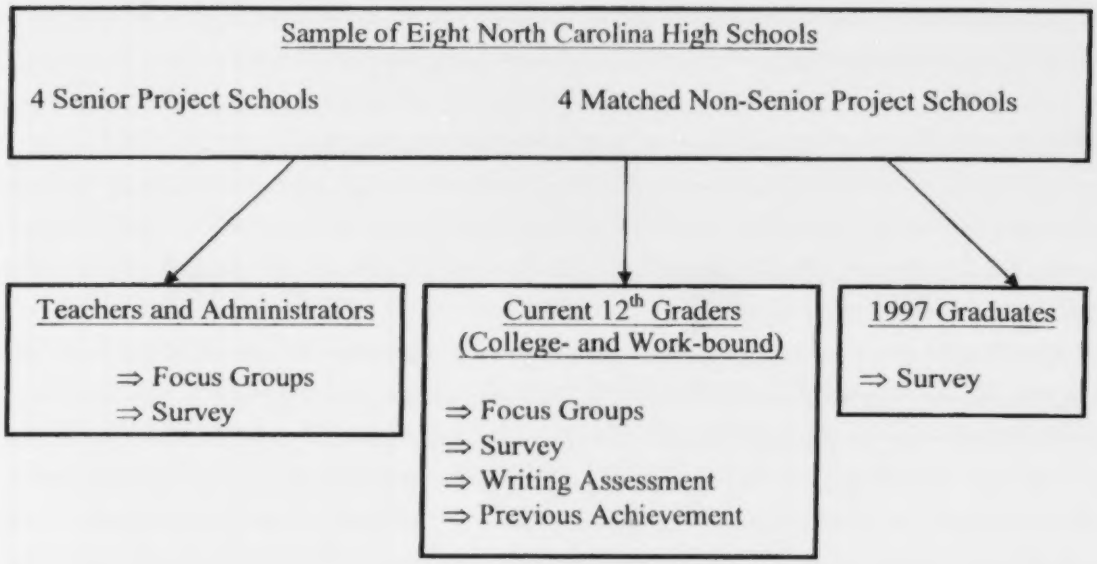
[1] All high school names are pseudonyms.

Study Design

Measures

The SERVE research team used a variety of measures to probe for possible differences between Senior Project and Control schools in methods of instruction and assessment, development of specific skills, student achievement, class offerings and clubs, school improvement models, faculty and student attitudes, and graduate attitudes. Figure 1 provides an overview of the data sources and measures utilized in the study.

Figure 1: Data Sources and Measures



All data were collected in the spring of 2000 during site visits except for the 1997 graduate survey that was mailed to high school graduates. During each site visit, each principal was interviewed to better understand the context of each school and any initiatives in which the school was participating. This information was incorporated into focus group and interview protocols as probing questions when necessary.

The measures employed were (See Appendix A for copies of surveys and protocols):

- **A teacher survey** - Teachers in all disciplines provided information about their teaching and assessment methods and about the level of emphasis they place on a variety of academic, communication, and employment skills.

- **A student survey** - Students provided information about the ways in which their Senior English teachers teach and grade their work. They also reported their perceptions of the level of emphasis given by the faculty as a whole to a variety of specific skills.

- **Faculty interviews and focus groups** - The department chairs at each school participated in either individual interviews or focus groups, depending on scheduling issues, to provide information and share their thoughts about academic- and career-related reform efforts.

- **Student focus groups** - Student participated in focus group interviews to talk about how their schools had prepared them for their chosen futures. Groups of work-bound and college-bound students participated in separate focus groups.

- **A writing assessment** - Student volunteers completed a common-prompt writing exercise, the *Writing Process Test*, to demonstrate their writing skills.

- **A graduate follow-up survey** – A sample of 1997 graduates from each school were mailed surveys concerning their experiences in high school, especially how well they felt their schools had prepared them for the future. Graduates of Senior Project schools were asked to reflect specifically on the significance of the Senior Project experience.

Data Collection Strategies

Survey Data

Teacher and student surveys were administered during each site visit in the spring of 2000. To insure high response rates, a faculty meeting was called at each school to administer the teacher survey. Two hundred and ten Senior Project teachers and 226 Control teachers completed the surveys. Study information was sent to parents prior to the site visits to encourage all seniors to participate and to return a signed permission slip. In all, 317 Senior Project students and 105 Control students (12^{th} graders) completed student surveys.

Graduate surveys were mailed in late Spring 2000 to all 1997 graduates of the four Senior Project and Non-Senior Project high schools. Contact information for graduates was limited to the last address and phone number on file with the school. Given how transient young adults are, the initial response to the mailed survey was low. Follow-up calls to last known telephone numbers yielded few additional responses. The final response rates were 11% (n=81) for Senior Project school graduates and 12% (n=82) for Control school graduates. Within the samples, response rates by school are roughly equivalent, with 10-11% response from Senior Project schools and 10-15% response from Control schools. Therefore, each school has nearly proportional representation within its respective sample.

Focus Group and Interview Data

In the spring of 2000, members of the research team visited all eight schools. While on the premises, they held focus group interviews with students and faculty. At each school, separate focus groups were held with small groups of college-bound and work-bound students. Individual and/or group interviews were held with department chairs at each school.

Table 2
Research Study Participants at Senior Project and Control Schools

School	Students				Teachers	
	Focus Group		Survey Group	Graduates	Focus Group	Survey Group
	Workbound	Collegebound				
Eno River High	4	7	51	36	13	72
Weymouth Woods High	11	11	25	19	10	49
Hanging Rock High	4	6	51	12	16	48
Singletary Lake High	10	10	29	18	7	51
Morrow Mountain High	7	6	185	18	14	46
Raven Rock High	4	7	26	20	11	55
Parker Creek High	7	14	30	15	42	44
Rollingview High	0	13	25	25	9	71
Total	47	74	422	163	122	436

Writing Assessment Data

Administrators at participating schools selected one senior college-prep English class to participate. SERVE staff administered the assessment to these students (whose parents gave permission) during site visits in the spring of 2000. The number of students per school ranged from 12 to 21.

Eight trained raters scored the assessments. All raters were either North Carolina certified high school English teachers or administrators who were formerly English teachers. Student essays were scored independently by two raters and were rated a third time if the total score, which has a range of zero to 40, had a discrepancy between the initial ratings of more than three raw score points. The raters were not aware of the purpose of the assessment and did not know what high schools were involved.

IV. Instruction and Assessment

Teacher Perceptions

From Survey Data

High school teachers (all subjects, all grades) rated the frequency with which they used specific instructional and assessment methods in their classes. Frequency was rated on a scale of 1 (never) to 5 (daily). To more easily summarize the data, the five frequency categories have been collapsed into three categories (Every day to once a week, Once a month or once a semester, and Never).

Teachers' ratings of instructional methods are presented in Table 3. Based on a t-test of mean differences in the item scale scores, there are no statistically significant differences ($p<.05$) in how often Senior Project and Control teachers report using a variety of specific teaching methods.

Table 3
Instructional Methods - Frequency of teachers' use

Instructional Methods	Senior Project Schools (n=210)			Control Schools (n=226)		
	% Daily-Once a week	% Once a month or semester	% Never	% Daily-Once a week	% Once a month or semester	% Never
Direct Instruction with Entire Class	95.4	2.5	2.0	94.6	4.6	0.9
Individual Instruction	82.0	17.5	0.5	77.7	21.9	0.5
Independent Student Learning	72.1	19.8	8.1	69.2	28.5	2.4
Cooperative Learning	68.3	26.6	5.0	70.2	27.0	2.8
Small Group Instruction	59.2	35.3	5.5	63.1	31.3	5.5
Students Teaching Each Other	47.2	42.2	10.6	38.3	53.0	8.8
Discovery-based Learning	31.4	48.7	19.9	20.5	59.5	20.0
Project-based Instruction	29.2	59.8	10.3	21.3	68.6	10.1
Computer-based Instruction	25.2	44.7	30.2	26.8	47.9	25.4
Seminars Facilitating Student Discussion	21.3	39.1	39.6	18.4	52.3	29.2

Teachers' responses to the assessment items are presented in Table 4. As in the case of instructional methods, Senior Project and Control teachers report using a variety of specific assessment methods with similar frequency. However, based on a t-test of mean differences, there is a statistically significant difference ($p<.05$) in the degree to which Senior Project (vs. Control) teachers report grading students by using rubrics or evaluating extended project work. In both cases, Senior Project teachers reported doing this more often than did their Control school counterparts.

Table 4
Assessment methods - Frequency of teachers' use

Assessment Methods	Senior Project Schools (n=210)			Control Schools (n=226)		
	% Daily-Once a week	% Once a month or semester	% Never	% Daily-Once a week	% Once a month or semester	% Never
Student demonstrates a skill	75.2	23.8	1.1	75.0	23.5	1.4
Forced Response (Multiple choice, matching, Fill-in-blank, T/F)	52.5	39.4	8.1	53.2	40.6	6.1
Written Responses/Journals	51.8	34.3	13.9	45.6	37.8	16.6
Student Self-Assessment	49.8	34.8	15.4	37.6	44.6	17.4
Student assembles collection of work	42.2	41.6	16.2	33.7	46.9	19.4
Rubric	***27.2***	***49.2***	***23.0***	19.0	46.0	35.0
Individual student progress interview/conference	20.6	67.3	12.1	15.5	67.1	16.4
Individual or group oral presentation	13.4	72.3	14.4	16.3	62.4	21.4
Extended project	***9.5***	***68.6***	***21.9***	7.9	61.5	30.0

NOTE: ***Bold italics*** indicate a statistically significant difference ($p<.05$) in mean ratings of these items.

Student Perceptions

From Survey Data

Senior Project and Control students' perceptions of the use of specific teaching and assessment methods in their English classes are presented in Table 5. Students were asked only about their English classes because Senior Project is housed in the English department at the four Senior Project schools and to provide a common reference as almost all seniors have English. As on the teacher surveys, frequency was rated on a scale of 1 (never) to 5 (daily), and ratings were collapsed in the resulting tables into three categories including "Every day to once a week," "Once a month or once a semester," and "Never."

Senior Project and Control students report more similarities than differences in their teachers' practices when asked to rate how often their English teachers use a variety of teaching methods. However, there are some statistically significant differences ($p<.05$). Compared to Control students, Senior Project students reported that their teachers lecture more, assign more projects, and use computers more often in their instruction. On the other hand, according to students, Control school English teachers use cooperative learning strategies and hold seminars in class more than do English teachers at Senior Project schools.

Table 5
Teaching Methods - Frequency of English teachers' use

Senior English Teacher Teaching Methods	Senior Project Schools (n=317)			Control Schools (n=105)		
	% Daily-Once a week	% Once a month or semester	% Never	% Daily-Once a week	% Once a month or semester	% Never
Lectures	***78.8***	***17.1***	***4.1***	69.3	19.2	11.5
Independent Student Learning	63.9	28.4	7.7	62.8	25.7	11.4
Cooperative Learning	62.6	29.4	8.0	***72.8***	***22.3***	***4.9***
Individual Instruction	54.6	30.2	15.2	49.6	40.0	10.5
Small Group Instruction	44.8	38.7	16.5	50.5	40.0	9.5
Project-based Instruction	***42.1***	***54.1***	***3.8***	17.2	75.2	7.6
Students Teaching Each Other	28.7	49.7	21.7	20.0	54.3	25.7
Computer-based Instruction	***15.9***	***48.6***	***35.6***	13.3	31.4	55.2
Seminars	11.7	38.8	49.5	***18.3***	***44.2***	***37.5***

NOTE: ***Bold italics*** indicate a statistically significant difference ($p<.05$) in mean ratings of these items.

Table 6 compares Senior Project and Control students' perceptions of how their English teachers grade their progress. According to students, the assessment methods used by Senior Project and Control teachers differ more than do their instructional methods. Compared to Control students, Senior Project students report that their teachers make more frequent use of written responses or journals, rubrics, projects, portfolios, and speeches to grade students' performance in English. Meanwhile, Control students report that their English teachers give forced responses tests and have them grade their own work more often than the Senior Project students do.

Table 6
Assessment Methods - Frequency of English teachers' use

The way my Senior English Teacher Grades	Senior Project Schools (n=317)			Control Schools (n=105)		
	% Daily-Once a week	% Once a month or semester	% Never	% Daily-Once a week	% Once a month or semester	% Never
Written Responses/Journals	***56.7***	***31.7***	***11.5***	41.3	35.6	23.1
Forced response tests (Multiple choice, matching, Fill-in-blank, T/F)	47.1	37.6	15.3	***48.1***	***48.1***	***3.8***
Rubric (scoring guide)	***28.3***	***59.6***	***12.1***	22.8	43.6	33.7
Project	***26.1***	***71.7***	***2.2***	8.7	82.5	8.7
Student portfolios	***22.5***	***60.8***	***16.7***	15.2	38.1	46.7
Performance Assessment • Student demonstrates a skill	22.0	58.2	19.7	20.0	51.4	28.6
Individual student progress interview/conference	15.8	42.0	42.3	13.5	33.7	52.9
Speeches	***15.3***	***69.4***	***15.3***	10.7	45.6	43.7
Students grade their own work	12.1	16.6	71.2	***11.5***	***36.5***	***51.4***

NOTE: ***Bold italics*** indicate a statistically significant difference ($p<.05$) in mean ratings of these items.

V. Development of Specific Skills

Teacher Perceptions

From Survey Data

On the faculty surveys, teachers were presented with an extensive list of specific skills and asked to indicate the level of priority each skill received in their classrooms. These specific skills fall into eight categories:

- Communication skills,
- Computer knowledge,
- Employability skills,
- Information-retrieval skills,
- Language skills - Reading,
- Language skills - Writing,
- Teamwork, and
- Thinking/Problem-solving skills.

Table 7 presents Senior Project (n=210) compared to Control (n=226) teachers' ratings of how much they emphasize these skills in their teaching. The skill items are displayed in order depending on the percent rated "high emphasis" by Senior Project teachers. With a few deviations, the Control teachers ordered the specific skills in a similar fashion. Overall, teachers at both types of schools appear to place similar emphasis on these specific skills. The only exceptions appear to be that Control school teachers emphasize "responding to criticism or questions" more than Senior Project school teachers do, while Senior Project teachers emphasize "locating and choosing appropriate reference materials" more than their Control school counterparts do.

Table 7
Teachers' Reported Emphasis on Teaching Specific Skills

Skills Taught	Senior Project Schools (n=210)			Control Schools (n=226)		
Communication Skills	**High emphasis**	**Moderate-Low**	**No emphasis**	**High emphasis**	**Moderate-Low**	**No emphasis**
Conveying thoughts or opinions effectively	53.7	42.4	3.9	47.9	47.0	5.1
When presenting information, distinguishing between relevant and irrelevant information	46.3	49.3	4.4	39.5	54.4	6.0
Explaining a concept to others	44.2	53.8	2.0	40.4	58.6	1.0
Interviewing others or being interviewed	16.6	57.8	25.6	14.6	51.9	33.5
Computer Knowledge	**High emphasis**	**Moderate-Low**	**No emphasis**	**High emphasis**	**Moderate-Low**	**No emphasis**
Using word-processing and database programs	23.4	48.3	28.4	19.5	46.3	34.1
Developing visual aides for presentations	21.7	59.6	18.7	21.8	62.2	16.0
Using a computer for communication	17.3	42.2	40.6	19.2	34.6	46.2
Learning new software programs	15.8	50.9	33.2	18.0	49.5	32.5
Employability Skills	**High emphasis**	**Moderate-Low**	**No emphasis**	**High emphasis**	**Moderate-Low**	**No emphasis**
Assuming responsibility for own learning	78.4	21.1	0.5	82.0	18.0	0.0
Persisting until job is completed	76.4	22.6	1.0	75.2	24.8	0.0
Working independently	68.5	30.5	1.0	70.8	29.3	0.0
Developing career interests/goals	42.4	51.5	6.1	37.2	57.5	5.3
Responding to criticism or questions	42.2	53.8	4.0	***53.1***	***46.4***	***0.5***
Information Retrieval Skills	**High emphasis**	**Moderate-Low**	**No emphasis**	**High emphasis**	**Moderate-Low**	**No emphasis**
Searching for information via the computer	28.6	54.8	16.6	27.3	52.2	20.6
Searching for print information	22.1	58.3	19.6	21.7	54.1	24.2
Searching for information using community members	13.1	62.9	24.1	10.7	61.2	28.2
Language Skills—Reading	**High emphasis**	**Moderate-Low**	**No emphasis**	**High emphasis**	**Moderate-Low**	**No emphasis**
Following written directions	77.8	20.7	1.5	77.1	21.1	1.4
Identifying cause and effect relationships	51.5	44.5	4.0	50.2	47.0	2.8
After reading, summarizing main points	44.6	48.5	6.9	46.5	44.6	8.9
Locating & choosing appropriate reference materials	***37.3***	***53.7***	***9.0***	26.0	67.0	7.0
Reading for personal learning	27.9	61.7	10.4	29.2	58.5	12.3
Language Skills—Writing	**High emphasis**	**Moderate-Low**	**No emphasis**	**High emphasis**	**Moderate-Low**	**No emphasis**
Using language accurately	57.4	39.1	3.5	50.5	46.8	2.8
Organizing and relating ideas when writing	38.8	50.7	10.4	34.7	52.1	13.1
Proofing and editing	34.3	50.0	15.7	32.6	47.5	20.0
Synthesizing information from several sources	33.0	53.2	13.8	27.6	60.3	12.1
Documenting sources	22.3	60.4	17.3	25.5	51.4	23.1
Developing an outline	21.9	58.7	19.4	18.7	79.5	20.6
Writing to persuade or justify a position	20.2	55.1	24.6	13.6	58.3	28.2
Creating memos, letters, & other forms of correspondence	15.3	55.4	29.2	11.7	53.6	34.7
Teamwork	**High emphasis**	**Moderate-Low**	**No emphasis**	**High emphasis**	**Moderate-Low**	**No emphasis**
Taking initiative	59.3	39.2	1.5	61.6	36.9	1.4
Working on a team	46.5	49.5	4.0	48.8	50.2	1.0
Thinking/Problem-Solving Skills	**High emphasis**	**Moderate-Low**	**No emphasis**	**High emphasis**	**Moderate-Low**	**No emphasis**
Identifying key problems or questions	53.8	44.7	1.5	55.3	43.8	1.0
Evaluating results	49.2	48.2	2.5	50.5	47.6	1.9
Developing strategies to address problems	47.5	49.5	3.0	50.5	48.6	1.0
Developing an action plan or timeline	35.0	55.0	10.0	34.3	57.4	8.2

NOTE: ***Bold italics*** indicate a statistically significant difference ($p<.05$) in mean ratings of these items.

From Interview/Focus Group Data

In focus groups and interviews, teachers described recent academic or career-related reform efforts that were intended to raise standards or prepare students for their future. Faculty members at all schools, Senior Project and Control, reported the initiation of a variety of academic and career-related reforms over the past five years. Career-related initiatives included Senior Project (at the four treatment schools), business studies, apprenticeship programs, and creation of a specialized career center, job shadowing, and expanded vocational offerings. In recent years, all schools have expanded their academic and non-academic course offerings to meet individual needs (e.g., a communications class, a Scholastic Achievement Test (SAT) preparation class, a Reserve Officers Training Corps program, classes for at-risk students, women's studies class, Choices career guidance program, summer school, math enrichment). Both types of schools in this study have also added more high-level courses to their respective curriculums (e.g., Advanced Placement, Honors, college-level). To a lesser degree, these schools have also implemented technology-focused programs (e.g., Laptop program, expansion of technology emphasis, PowerPoint).

When asked what changes they would like to see implemented in the future, faculty at both types of schools expressed a desire for more electives (e.g., drama, debate, SAT prep course, auto mechanics, journalism, Spanish, mental health training, language classes). Teachers at some Senior Project schools also hoped for changes in block scheduling, making Senior Project a stand-alone class, and making Senior Project less vocational. Meanwhile, teachers at the Control schools were interested in having more technology embedded in the curriculum and less emphasis on end-of-course tests.

Student Perceptions

From Survey Data

Senior Project school (n=317) and comparison school (n=105) students who took the student survey were asked to rate the emphasis placed on a variety of skills by the teachers in their classes. Comparing Table 8 results to those in Table 7, Senior Project and Control students perceive greater differences than those reported by their teachers. A number of skills are perceived to have more emphasis at Senior Project than Control schools. Based on a t-test of mean differences, statistically significant differences ($p<.05$) were found for each of the following skills, many of which are within the domain of writing skills:

- Conveying thoughts or opinions effectively,
- Interviewing others or being interviewed,
- Using word-processing and database programs,
- Persisting until job is completed,
- Searching for information using community members,
- Using language accurately,
- Proofing and editing,
- Organizing and relating ideas in writing,
- Documenting sources,
- Synthesizing information from several sources, and
- Writing to persuade or justify a position.

Table 8
Students' Perceptions of Emphasis on Specific Skills

Skills Taught	Senior Project Schools (n=317)			Control Schools (n=105)		
Communication Skills	Very important	Somewhat important	Not taught	Very important	Somewhat important	Not taught
Conveying thoughts or opinions effectively	***52.6***	***45.2***	***2.2***	42.9	51.4	5.7
Distinguishing between important & unimportant information	41.1	55.4	3.5	43.8	50.5	5.7
Explaining a concept to others	31.5	62.4	6.1	37.5	55.8	6.7
Interviewing others or being interviewed	***22.6***	***66.6***	***10.8***	15.4	58.7	26.0
Computer Knowledge	Very important	Somewhat important	Not taught	Very important	Somewhat important	Not taught
Developing visual aides for presentations	43.6	54.5	1.9	38.5	53.8	7.7
Using word-processing and database programs	***37.8***	***54.6***	***7.6***	27.9	57.7	14.4
Learning new software programs	23.0	57.8	19.2	25.0	51.0	24.0
Using a computer for communication	22.1	51.6	26.3	28.8	34.6	36.5
Employability Skills	Very important	Somewhat important	Not taught	Very important	Somewhat important	Not taught
Assuming responsibility for own learning	61.5	35.7	2.9	56.7	40.4	2.9
Persisting until job is completed	***58.4***	***40.0***	***1.6***	49.0	47.1	3.8
Working independently	54.8	43.3	1.9	50.0	48.1	1.9
Developing career interests/goals	54.1	43.6	2.2	52.4	40.8	6.8
Responding to criticism or questions	45.5	51.9	2.5	45.2	47.1	7.7
Information Retrieval Skills	Very important	Somewhat important	Not taught	Very important	Somewhat important	Not taught
Searching for information using the computer	42.4	51.0	6.7	35.6	57.7	6.7
Searching for print information	27.1	62.1	10.8	25.0	61.5	13.5
Searching for information using community members	***20.4***	***65.6***	***14.0***	25.0	44.2	30.8
Language Skills—Reading	Very important	Somewhat important	Not taught	Very important	Somewhat important	Not taught
Following written directions	71.5	28.2	0.3	70.5	27.6	1.9
After reading, summarizing main points	52.4	47.0	0.6	47.6	51.4	1.0
Locating & choosing appropriate reference materials	41.5	56.9	1.6	31.4	67.6	1.0
Reading for personal learning	40.3	54.3	5.4	34.3	58.1	7.6
Identifying cause and effect relationships	24.8	70.1	5.1	30.4	64.7	4.9
Language Skills—Writing	Very important	Somewhat important	Not taught	Very important	Somewhat important	Not taught
Using language accurately	***61.5***	***36.6***	***1.9***	55.8	34.6	9.6
Proofing and editing	***60.5***	***37.3***	***2.2***	41.0	57.1	1.9
Organizing and relating ideas when writing	***59.5***	***39.2***	***1.3***	44.8	52.4	2.9
Documenting sources	***59.0***	***38.8***	***2.2***	36.2	62.9	1.0
Developing an outline	48.7	49.7	1.6	35.6	60.6	3.8
Synthesizing information from several sources	***41.7***	***56.1***	***2.2***	26.7	67.6	5.7
Writing to persuade or justify a position	***37.3***	***58.9***	***3.8***	27.9	62.5	9.6
Creating memos, letters, & other forms of correspondence	23.3	65.2	11.5	25.0	56.7	18.3
Teamwork	Very important	Somewhat important	Not taught	Very important	Somewhat important	Not taught
Working as a team	52.7	44.1	3.2	55.9	43.1	1.0
Taking initiative	51.4	46.0	2.5	43.7	52.4	3.9
Thinking/Problem-Solving Skills	Very important	Somewhat important	Not taught	Very important	Somewhat important	Not taught
Identifying key problems or questions	39.5	58.6	1.9	43.8	50.5	5.7
Developing strategies to address problems	37.9	57.6	4.5	38.1	56.2	5.7
Evaluating results	37.7	57.5	4.8	36.5	59.6	3.8
Developing an action plan or timeline	29.4	64.5	6.1	25.7	66.7	7.6

NOTE: ***Bold italics*** indicate a statistically significant difference ($p<.05$) in mean ratings of these items.

From Focus Group Data

College-bound and work-bound students at both Senior Project and Control schools were asked how their high schools had prepared them for the future. In focus groups both types of students reported a desire for more opportunities to improve communication and analytical skills, make presentations, conduct research, and explore career options. At Senior Project schools, both work-bound and college-bound students reported having had some opportunities to practice these skills while they were in high school. In the case of the work-bound students at Senior Project schools, opportunities to practice these skills came primarily through the experience of their Senior Projects. In contrast, Control students reported developing a more limited set of future-oriented skills. College-bound students at the Control schools indicated that they mainly developed academic-focused skills, and work-bound students had mainly explored career possibilities.

VI. Student Achievement

The outcomes component of this study investigated whether Senior Project participation was positively related to student achievement. Since English is the one class that virtually all seniors take, most NC Senior Project programs are based in the English Department and are implemented as a requirement for Senior English (English IV). Writing is also a significant activity associated with the successful completion of the Senior Project. Therefore, the research team opted to compare the writing skills of students at Senior Project and Control schools who had completed (or nearly completed) Senior English.

Though it was not possible to match schools on the basis of their academic performance in English, each Senior Project and Control school subsequently provided the research team with state English II test performance data for members of the current senior class. In the state of North Carolina, the end-of-course test (EOC) for English II, taken in Grade 10, is a common prompt writing assessment. Table 9 summarizes the performance of the study's target class, the class of 2000, on this test that served as a pre-test for the achievement analyses.

Table 9
English II End-of-Course Test Performance
Class of 2000

Senior Project Schools	English II (% at or above Proficiency)
SP_1: Eno River High	66.3
C_1: Weymouth Woods High	65.8
SP_2: Hanging Rock High	65.6
C_2: Singletary Lake High	59.0
SP_3: Morrow Mountain High	70.2
C_3: Raven Rock High	42.2
SP_4: Parker Creek High	73.5
C_4: Rollingview High	55.9

In each case, a higher proportion of seniors at the Senior Project schools scored at or above proficiency on the English II exam compared to seniors at their respective Control schools. The

senior classes at Morrow Mountain High and Parker Creek High performed significantly better than their counterparts at Raven Rock High School and Rollingview High School, respectively. To make a fair comparison, analysis of subsequent writing assessment results would be adjusted for these differences on prior achievement measures.

Writing Process Test Results

The *Writing Process Test* (WPT)[2] was selected to measure the quality of written products and writers' perceptions and misperceptions of effective writing strategies. During the 25-minute administration, the writer must plan what to write and draft a composition based on this planning. The WPT assesses a writer's skill in terms of development and fluency. Development includes six components: 1) purpose/focus, 2) audience, 3) vocabulary, 4) style/tone, 5) support/development, and 6) organization/coherence. Fluency consists of four components: 1) sentence structure/variety, 2) grammar/usage, 3) capitalization/punctuation, and 4) spelling.

The compositions are rated using analytic scales. Each of the 10 components of development and fluency is rated independently on a 0 to 4 scale as follows:

0 = The writer's grasp of a particular writing skill is "problematic";
1 = The writer is "not yet competent";
2 = The writer is "partly competent";
3 = The writer is "competent"; and
4 = The writer is "sophisticated".

Three scores can be computed: Development, Fluency, and a Total score. The Total score is considered a "direct measure of overall composing ability"[3] and ranges from zero to 40. All three scores can also be converted to normed scores.

Raters are trained using calibration compositions. These compositions have been scored by experienced raters and are standards to which new raters should come to agree. Using this training process, the inter-rater agreement is modest at .60 for 12th grade compositions. Factor analysis, conducted for construct validity purposes, found that the development and fluency scales loaded on one factor, suggesting the instrument assesses a global writing ability.

Results

Statistical analyses included both descriptive and inferential analyses. To Control for prior writing ability, the North Carolina 10th Grade English II Writing Test[4] was used as a covariate.

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[2] M. R. Warden & T. A. Hutchinson (1992). Writing Process Test: Test Manual, Individual Edition. Chicago, IL: The Riverside Publishing Company.

[3] Ibid., p. 32.

[4] The 1997-98 English II Writing Test was scored using a seven-point holistic rubric that ranged from 0 to 6. The definitions of each score were: 0 = Addresses literary work but incorrect perception; 1 = Attempted to respond to prompt; focus not sustained; 2 = Responded to prompt but response may be unclear; 3 = Some progression of ideas,

An analysis of covariance was conducted to test the hypothesis of the impact of Senior Project on students' writing ability. Table 9 provides these descriptive and inferential results comparing the writing ability, as measured by the English II test and WPT, of Senior Project (SP) and non-Senior Project (non-SP) students. The 10th Grade Writing Scores were higher for SP compared to non-SP students. However, this mean difference was not statistically significant ($F_{1,133}$=1.92, p=.17).

The unadjusted WPT Normal Curve Equivalent (NCE) mean scores were approximately the same for SP and non-SP students. When taking into account prior writing ability, as measured by the 10th Grade English II Writing Test, the WPT NCE mean scores were higher for non-SP students. However, this mean difference was not statistically significant ($F_{1, 132}$=0.51, p=.48).

Table 10
Senior Project Writing Score Analyses

English II Writing Test Mean Scores		WPT NCE Mean Scores – Unadjusted		WPT NCE Mean Scores-Adjusted	
SP	*Non-SP*	*SP*	*Non-SP*	*SP*	*Non-SP*
(n=74)	*(n=61)*	*(n=74)*	*(n=61)*	*(n=74)*	*(n=61)*
2.70 (SD=.572)	2.54 (SD=.782)	52.82 (SD=18.5)	52.20 (SD=20.9)	51.98	54.22

VII. The Experience of High School Graduates

A sample of graduates from the class of 1997 at all eight-study schools completed surveys in Spring 2000 concerning how well they felt that their school experiences had prepared them for the future. They were asked to indicate the kinds of skills that were learned and/or reinforced while they were in high school, as well as which skills they have used since graduating from high school. Eighty-one Senior Project school graduates and 82 Control school graduates responded to the survey.

Table 11 summarizes the results of a series of chi-square (X^2) tests of association between type of sample (Senior Project vs. Control school) and whether students' perceptions of specific skills were *learned* and *reinforced* in the graduates' high school classes (yes or no).

There is a statistically significant association (p<.05) between the type of school (Senior Project vs. Control) and whether the following skills were learned in high school:

- Write a research paper (99% SP vs. 88 % C),
- Prepare and present a speech (86% SP vs. 55% C),
- Carry out a plan (80% SP vs. 65% C), and

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support, elaboration; 4 = Focused response, progression of ideas, some minor flaws; 5 = Focused response, logical progression, exhibits command of writing; 6 = Focused, fluent, strong command of writing.

- Conduct interviews (49% SP vs. 33% C).

There is a statistically significant association ($p<.05$) between the type of school (Senior Project vs. Control) and whether the following skills were perceived by students as *reinforced* in graduates' high school classes:

- Preparing and presenting a speech (66% SP vs. 49% C),
- Conducting research (82% SP vs. 68% C), and
- Locating appropriate references (82% SP vs. 68% C).

In each case, graduates who attended Senior Project high schools reported that these skills were reinforced in their classes more than Control school graduates did.

Table 11
Skills Learned in Class

Skill	*Learned* in High School Classes		*Reinforced* in High School Classes	
	% "Yes" Senior Project (n=79-81)†	% "Yes" Control (n=79-82)†	% "Yes" Senior Project (n=70-78)†	% "Yes" Control (n=68-78)†
Writing a research paper	***99***	***88***	77	76
Conducting research	91	81	***82***	***68***
Locating appropriate reference materials	91	84	***82***	***68***
Interviewing	***49***	***33***	43	29
Summarizing information	86	87	80	78
Proofing and editing	89	79	82	73
Preparing and presenting a speech	***86***	***55***	***66***	***49***
Time management	61	49	51	49
Carrying out a plan	80	65	67	62

†Number of missing observations varies by item. Percentages are based on the number of valid observations available for each item.
NOTE: ***Bold italics*** indicate a statistically significant ($p<.05$) association between sample type and skills learned.

Finally, students were asked to relate which skills they had *used* since graduating from high school. These results are presented in Table 12. Although there are differences in the degree to which Senior Project and Control school graduates learned and/or were required to use certain skills while they were in high school, there are no statistically significant differences in the degree to which graduates have been called upon to use these skills *since* high school. And high percentages of graduates in both groups (65-90%) report that they have used these skills since high school.

Table 12
Skills Used Since High School

Skills *Used* Since High School?	% "Yes" Senior Project (n=72-79)†	% "Yes" Control (n=71-80)†
Writing a research paper	81	86
Conducting research	80	90
Locating appropriate reference materials	84	89
Interviewing	65	72
Summarizing information	84	91
Proofing and editing	82	86
Preparing and presenting a speech	76	87
Time management	77	88
Carrying out a plan	87	91

†Number of missing observations varies by item. Percentages are based on the number of valid observations available for each item.

The role of Senior Project in thinking about the future

Graduates from the Senior Project schools were asked to respond to a series of open-ended questions, including "What role (if any) did your experience with Senior Project play in your thinking about career or plans?" About half of the responding graduates indicated that Senior Project played a role in their future career or plans; mostly by enabling them to explore careers they thought they would be interested in pursuing. Several others learned that they were not well suited to the fields they chose to study. And a few graduates reported that they had explored hobbies rather than careers and that these interests remain with them today.

> *A big role - through my Senior Project I learned that I definitely wanted to work with people in either a medical or athletic environment.*
> ---Learned more about reconstructive knee surgery

> *I narrowed down the type of profession I was thinking about becoming...in the pharmacy profession but not a clinical pharmacist.*
> ---Studied opportunities in pharmacology in her hometown

> *While researching my Senior Project, I realized the career I had chosen was not the career for me.*
> ---Explored the occupation of physical therapist

> *Not any role in my career. It was and still is a hobby of mine.*
> ---Studied the use of African drumming in therapy and rehabilitation

About a third of the respondents felt that Senior Project had no influence on their futures. Most of them simply replied "none," but a few offered more strongly worded reactions to the question.

> *None - it was just a bunch of hassle and stress. It did not apply to my future career at all.*
> ---Learned about cosmetology and did makeovers for friends

Absolutely nothing - I had to do it to graduate but after I did I felt I had not learned one thing to prepare me for the real world.
---Studied psychology, found social sciences "interesting and fun"

Skills learned through Senior Project

Even if Senior Project school graduates felt that their Senior Projects did not prepare them for a career *per se*, a clear majority (about 75%) reported gaining specific skills through the experience. Most of them credited Senior Project with helping them to develop a variety of communication and research skills, including public speaking, writing, presenting information, and interviewing people. Some identified the most positive outcome as their grade or the fact that they were able to graduate because they passed their Senior Project. A smaller number said that the experience led to a job, a career, or better preparation for college.

Most of the positive outcomes cited by the Senior Project school graduates fall under the categories of personal outcomes (about 30%) or outcomes related to specific aspects of their projects (about 35%).

- ***Personal outcomes*** include a general sense of accomplishment, increased self-confidence, and other more individual results—such as appreciation for how hard a parent works in her occupation, the bond formed when training a family pet, and "*learning to appreciate another culture and [the] importance of ...preserving their culture.*"

- ***Outcomes related to the components of their projects*** include taking special pride in the finished product (e.g., a painting in the Impressionist style, a boat, a fashion show) or the presentation, being able to apply the skills they developed (e.g., changing a tire, playing the guitar, using PowerPoint), and having an impact on others.

  I really felt like I—I should say we—made some valuable move in the right direction with regard to "getting through" to these students.
  ---Worked with behaviorally-challenged adolescents

  Learning and dealing with mental and physical reactions brought out by my topic. How it affected others and me.
  ---Studied classroom mainstreaming of special needs students

  The light on the team's faces when they won. The amazed but confident looks when they learned a new shot or passed to the right team in the game. Those are priceless memories. ---Coached a 3rd grade girls basketball team

Only two graduates wrote that the most positive outcome was either "*nothing*" or "*getting it over with.*"

VIII. Conclusions and Future Research Needs

Conclusions

Instruction and Assessment

For the most part, teachers across the curriculum at both Senior Project and Control schools reported that the frequencies with which they use particular methods of instruction and assessment are quite similar. There are a few minor differences. In terms of assessment, Senior Project teachers reported using rubrics and extended projects to assess student performance more often than Control teachers do. Extended projects and the use of rubrics are integral to the implementation and assessment of the Senior Project. All students develop a long-term project (in addition to a related research report and presentation); teachers and community members use rubrics to describe student performance on each component and on the Senior Project experience as a whole. However, the present study did not determine whether Senior Project has had any specific impact on the broader use of these methods.

In their English classes, Senior Project and Control students perceive a variety of differences in how their teachers instruct them and grade their work. In terms of instruction, Senior Project English teachers are perceived by students to lecture more, assign more project-related work, and use more computer-based instruction than were Control-school teachers. On the other hand, Control students reported that their English teachers use cooperative learning strategies and hold seminars more often than the Senior Project English teachers. The most relevant difference, with respect to Senior Project, is the difference in the amount of project-based instruction that teachers do. In Senior Project schools, students devote significant portions of the year, or semester in the case of block scheduling, engaging in some real-world application (or project) related to the research papers that they write at the beginning of the course. Projects involve teaching others, taking additional instruction outside of school, creating products, and volunteering their services, among other things.

Student reports about how they are graded in their English classes indicate clearer differences between Senior Project and Control schools. Control students perceived that their English teachers had students grade their own work more often than Senior Project students perceive their English teachers. Whereas, Senior Project English teachers use more of the following methods to assess student performance than did Control English teachers:

- Written responses or journal entries,
- Rubrics or scoring guides,
- Projects,
- Portfolios, and
- Speeches.

Each of these methods is integral to the assessment of the Senior Project. It appears, therefore, that in the absence of Senior Project, these alternative assessment methods are not used as frequently in English IV as might be appropriate. During the focus groups at the high schools,

all students mentioned enjoying and getting more out of classes that were performance-based. The focus group sessions at all eight schools included students enrolled in higher-level classes.

Development of Specific Skills

Teachers across the curriculum in Senior Project and Control schools reported assigning similar emphasis to specific skills in their classrooms. However, there were a few differences. Senior Project school- teachers report greater emphasis on locating and choosing appropriate reference materials, while Control teachers place a higher priority on teaching their students to respond to criticism and questions.

From the perspective of the students, however, there are a number of significant differences in the perceived importance of specific skills, especially writing skills, at Senior Project and Control schools. Senior Project students perceived greater emphasis than Control students on each of the following:

- Conveying thoughts or opinions effectively,
- Interviewing others or being interviewed,
- Using word-processing and database programs,
- Persisting until job is completed,
- Searching for information using community members,
- Using language accurately,
- Proofing and editing,
- Organizing and relating ideas in writing,
- Documenting sources,
- Synthesizing information from several sources, and
- Writing to persuade or justify a position.

Most of these skills are essential to the successful completion of the Senior Project. However, it is not known whether Senior Project is *responsible* for the fact that these skills are emphasized across the curriculum or whether schools that emphasize writing skills in particular are drawn to participate in the Senior Project, perhaps as a way to teach and reinforce these skills. At several sites students reported that the lack of technology in their schools limited instruction, students' technology skills and the type of work students were able to produce.

In recent years, both types of schools have implemented academic- and career-oriented reforms. Based on focus group interviews with teachers and students, there do not appear to be significant differences in the type or amount of reform efforts undertaken at Senior Project and Control schools.

Student Achievement

Senior English students took the *Writing Process Test* to assess the relationship between Senior Project and global writing abilities. After adjusting for scores on the 10th grade English II EOC, no statistically significant difference was found between the scores of Senior Project and Control school English students.

The Experience of High School Graduates

To a greater degree than their Control-school counterparts, Senior Project school graduates perceived that they learned in high school how to write research papers, prepare and present speeches, carry out plans, and interview others. They also felt that preparing and presenting speeches, conducting research, and locating appropriate references were reinforced in their high school classes. These findings are consistent with the requirements for the Senior Project.

Nevertheless, in spite of differences in the degree to which specific skills were either learned or reinforced in high school, both Senior Project and Control school graduates reported similar (and high) degrees to which they have used a variety of communication, research, time management, and planning skills since high school. In other words, these skills are in high demand outside of high school (on the job and in higher education) but not all students perceived that they had the opportunity to develop and apply them while in high school. There appears to be a strong association between graduating from a Senior Project high school and having the opportunity (a) to develop certain writing, speech-making, planning, and interviewing skills and (b) to apply speech making and research skills. These findings are consistent with the goals of the Senior Project program at SERVE and reinforce what was learned from surveys of the class of 2000.

More than half of the Senior Project school graduates felt that the Senior Project experience had influenced their future careers or plans. This recognition was usually because they learned something about a possible career, but also because they learned about careers they did not want to pursue, or they took time to explore hobbies that they still participate in. About 75% of graduates reported developing specific skills through their Senior Projects. These skills include public speaking, research, writing, presentation, interviewing, time management, planning, organization, interpersonal, and work-related skills, the skills embodied in the Senior Project.

Ultimately it is reasonable to conclude that Senior Project imparts important knowledge, skills, and formative experiences to high school seniors. And because it is required for the completion of Senior English, participation in Senior Project ensures that *all* students have the opportunity to do research, synthesize findings in writing, engage in applied learning, and practice public speaking--opportunities that in many schools are available only to the "best and brightest" students.

It also seems clear that the effects of the Senior Project experience are not necessarily evident in the short-run. The real value of Senior Project is not likely to be realized until students are out of high school and called upon to use their Senior Project-related knowledge and skills in a real-world setting, such as their workplace or an institution of higher education.

Schools not currently implementing Senior Project might want to consider some type of program that better prepares students for the world of work and higher education. Both 1997 Senior Project graduates and Control graduates reported that communication, planning and time management skills were ones they needed once they graduated from high school, regardless of whether they were entering the work force or continuing their educations.

Future Research Needs

Conducting this study demonstrated the need to investigate further the impact of high school guidance departments and school clubs on students. Although not a primary focus of this study, all the students in all the focus group sessions commented on the effectiveness and quality of the guidance departments in their schools. The emphasis on the guidance departments may have been because students were getting ready to graduate and were exploring their options after high school. In some cases, students praised the support and resources they received from counselors. The counselors were described as hard working, knowledgeable and playing active roles in helping them plan their futures. At other sites students stated that counselors did not pass on scholarship information to students, counselors had "favorite" students; counselors did not meet deadlines for scholarship recommendations, they did not seem to care about students, and seemed overwhelmed and overworked.

Many students reflected on the significance of student clubs and how meaningful they were as far as career exploration and their own personal growth and enjoyment. Some students remarked that they had learned more from participating in school clubs than from their classes. They particularly enjoyed clubs that had a performance element like drama or career exploration. Students at some schools wished that there were more club offerings.

Other areas for future research include examining the relationship between specific programmatic components that can vary across schools and their impacts. Examples include:

- Impact of student participation on achievement;
- Involving the community in Senior Project;
- Utilizing benchmarks for all components of Senior Project;
- The possible effect of topic choice on students;
- How the Senior Project participation impacts the college admissions process;
- Employing vertical planning programs and capstone programs in 5th and 8th grades to support the culminating Senior Project assessment; and
- How Senior Project supports the school improvement process.

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